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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/631,219	07/28/2003	Richard Scheps	82948	3293

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OFFICE OF PATENT COUNSEL
SPAWARSYCEN, CODE 20012
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EXAMINER

VAN ROY, TOD THOMAS

ART UNIT	PAPER NUMBER
2828	

DATE MAILED: 12/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

21

Office Action Summary	Application No.	Applicant(s)	
	10/631,219	SCHEPS, RICHARD	
	Examiner	Art Unit	
	Tod T. Van Roy <i>[Signature]</i>	2828	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 October 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 7/28/2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

The objection to the drawings is withdrawn as the reference characters are found to be correctly referred to in the specification.

Claim Objections

Objections to claims 1, 7, and 10-11 are withdrawn as these claims have been amended to overcome the said objections.

Response to Arguments

Applicant's arguments with respect to claims 1-11 have been considered but are moot in view of the new ground(s) of rejection.

Please see the rejections to claims 2 and 8 for further detail in the rejection to these claims.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 12 is rejected under 35 U.S.C. 102(b) as being anticipated by Scheps (US 5530711).

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With respect to claim 12, Scheps discloses a first optically reflective element (fig.9 #39), a second optically reflective element opposed to and aligned with said first optically reflective element to define a laser cavity having an optical axis (fig.9 #31e), a laser dye gain element (fig.9 #33) characterized by a fluorescence lifetime, t_f , (inherent) interposed between said first and second optically reflective elements along said optical axis for transforming an optical pump signal into a resonant optical signal (col.4 lines 48-60), a laser diode system for generating and injecting said optical pump signal into said laser cavity along said optical axis (fig.9 #18), where said optical pump signal is a sequence of optical pulses each having a pulse width, t , wherein $0.950 \leq 1 - e(-t/t_f) \leq 0.993$ (this relationship is equivalent to $3 \leq t/t_f \leq 5$, col.20 lines 15-20).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

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4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-11 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Scheps '711 in view of Scheps (US 5307358).

With respect to claim 1, '711 teaches a laser (fig.9) comprising a first optically reflective element (fig.9 #39), a second optically reflective element (fig.9 #31e) opposed to and aligned with said first optically reflective element to define a laser cavity having an optical axis, a laser dye gain element (fig.9 #33) having a dye laser dye (col.14 lines 7-9) and which is interposed between said first and second optically reflective elements along said optical axis for transforming an optical pump signal into a resonant optical signal (col.4 lines 48-60), a laser diode system for generating and injecting said optical pump signal into said laser cavity (fig.9 #18,18') along said optical axis, where said optical pump signal is a sequence of optical pulses (col.19 lines 30-39) having a duration of about $n\tau_f$, where τ_f represents a fluorescence lifetime of said laser dye, and $3 \leq n \leq 25$ (col.20 lines 15-20). Scheps does not teach the device to operate in a non-steady-state mode. Scheps '358 teaches an optical system wherein a dye medium is used (abs.) and advantages of operation in a non-steady-state mode are taught (col.1 lines 56-62). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the laser system of '711 with the operating conditions taught in '358 in order to take advantage of the larger gains associated with non-steady-state conditions ('358, col.1 lines 56-62; '711 talks of some benefits of operation in steady-state mode in col.20 lines 15-20, however, in the same passage the operation is referred to as being in steady-state for most of, but not all of, the duration of the pulse,

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'711 does not teach away from non-steady-state operation, but merely points out advantages of operating the system in one of the two modes).

With respect to claim 2, '711 and '358 teach the laser device as outlined in the rejection to claim 1 above, including the pump signal to have a pulse period of about 1MHz ('711 claim 37, wherein even if the claim describes electrical modulation, the pump diodes would have an optical response of about 1MHz).

With respect to claims 3 and 4, '711 and '358 teach a laser as described in the rejection to claim 1, and '711 also teaches the dye gain element to be of a host material from the group that includes porous glass, plastic, and sol-gels (col.3 lines 32-34) and further discloses the use of polymethylmethacrylate (col.3 line 34).

With respect to claim 5, '711 and '358 teach a laser as described in the rejection to claim 1, and '711 also teaches the first optically reflective element to have a curved reflective surface (fig.9 #39).

With respect to claim 6, '711 and '358 teach a laser as described in the rejection to claim 1, and '711 also teaches the first and second optically reflective elements to define a nearly hemispherical resonator (col.14 lines 25-31, describing a cavity with the reflective elements located such that a hemispherical laser resonator mode is formed, i.e. forming a hemispherical resonator).

With respect to claims 7-11 and 13, '711 and '358 teach the laser as described in the rejections to claims 1-6, and 12 above, while claims 7-11 are methods of generating the laser output signal and are hence rejected for the same reasons.

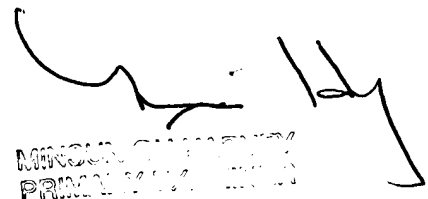
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tod T. Van Roy whose telephone number is (571)272-8447. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Minsun Harvey can be reached on (571)272-1835. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TVR



MIN SUN HARVEY
PATENT EXAMINER